CLAIMS

1. A damping material composed of a single constituent, having a loss factor tanδ of at least 0.25 and having two glass transition temperatures, at least one of which is substantially close to the use temperature of the material.

2. The damping material as claimed in claim 1, characterized in that it has a rigidity E' not exceeding 2000 MPa for a frequency between 50 and 500 Hz, preferably less than 1000 MPa, at a temperature between -60°C and -10°C.

3. The damping material as claimed in claim 1 or 2, characterized in that it has a glass transition temperature between -60°C and -10°C and a glass transition temperature between -10°C and +40°C.

4. The damping material as claimed in any one of claims 1 to 3, characterized in that it has, at a temperature of between +30°C and +100°C, a rigidity E' of between 1 and 200 MPa.

5. The damping material as claimed in any one of the preceding claims, characterized in that it comprises:

a) at least one component chosen from:

- one-component or two-component polyurethanes based on polyether polyols of the polypropylene glycol, polyethylene oxide (PEO) or polyTHF type or based on polybutadiene polyol, or else based on polycaprolactonepolyol,
- polyurethanes with methoxysilane or ethoxysilane end groups, and
- silane-modified polyether polyols of the polypropylene oxide type; and

b) at least one component chosen from: plasticized PVC, amorphous polyester polyol, polyester polyol with methoxysilane or ethoxysilane end groups, one-component polyurethane prepolymer, two-component polyurethane.

6. The damping material as claimed in claim 5, characterized in that it comprises a blend of at least two prepolymers, each based on polyether polyol and/or polyester polyol, and with isocyanate end groups or methoxysilane or ethoxysilane end groups.

7. The damping material as claimed in claim 6, characterized in that it comprises the following blend, the NCO percentage being between 0.5 and 2%:

- at least one polyether polyol of functionality equal to two, having an OH number iOH of between 25 and 35, a glass transition temperature Tg below -50°C, and a molecular weight between 3500 and 4500;
- at least one polyether polyol of functionality between 2.3 and 4, having an OH number iOH of between 25 and 800 and a glass transition temperature Tg below -50°C;
- at least one polyester polyol of functionality equal to two, having an OH number iOH of between 20 and 40, and a glass transition temperature Tg of between -40 and -20°C;
- at least one polyester polyol of functionality equal to two, having an OH number iOH of between 30 and 90, a glass transition temperature Tg of between 0 and 30°C and a softening point of between 50 and 70°C;
- at least one isocyanate of functionality between 2.1 and 2.7, of the diphenylmethane diisocyanate (MDI) type, and with an NCO percentage of between 11 and 33%;
- at least one catalyst;
- optionally, a filler of the molecular sieve type; and
- optionally, a filler of the chalk, kaolin, talc, alumina, carbon black or graphite type.

8. The damping material as claimed in claim 7, characterized in that it comprises, the % NCO being between 1.8 and 2.2% :

- between 180 and 220 g of a polyether polyol of functionality equal to two, having an OH number iOH of between 25 and 35, a glass transition temperature Tg below -50°C, and a molecular weight of between 3500 and 4500;
- between 75 and 115 g of an MDI-type isocyanate, with a % NCO equal to 11.9%;
- between 5 and 30 g of carbon black;
- between 0.5 and 3 g of catalyst;
- between 10 and 30 g of pyrogenic silica;

- between 135 and 180 g of a liquid and amorphous polyester polyol A, having an OH number iOH between 27 and 34, a molecular weight equal to 3500, a functionality equal to two and a glass transition temperature T_g of -30°C;
- between 35 and 85 g of a liquid and amorphous polyester polyol B, having an OH number iOH of between 27 and 34, a molecular weight equal to 3500, a functionality equal to two and a glass transition temperature Tg equal respectively to +20°C;
- between 55 and 110 g of an MDI-type isocyanate, with a % NCO equal to 11.9%; and
- between 20 and 80 g of a molecular sieve.

9. The damping material as claimed in claim 7, characterized in that it comprises, the % NCO being between 1.5 and 1.8%:

- between 70 and 130 g of a polyether polyol of functionality equal to two, having an OH number iOH of between 25 and 35, a glass transition temperature Tg below -50°C, and a molecular weight between 3500 and 4500;
- between 70 and 130 g of a polyether polyol of functionality between 2.3 and 4, having an OH number iOH of between 25 and 800 and a glass transition temperature Tg below -50°C,
- between 80 and 110 g of an MDI-type isocyanate, with a % NCO equal to 11.9%;
- between 5 and 30 g of carbon black;
- between 0.5 and 3 g of catalyst;
- between 10 and 30 g of pyrogenic silica;
- between 250 and 350 g of a copolyester polyol having an OH number iOH of between 27 and 34, a molecular weight equal to 3500, a maximum acid number equal to two, a functionality equal to two and a Tg equal to -30°C;
- between 100 and 140 g of an MDI-type isocyanate, with a % NCO equal to 11.9%; and
- between 20 and 60 g of molecular sieve.

10. The damping material as claimed in any one of the preceding claims, characterized in that it is used as at least one constituent material of a strip.

11. The damping material as claimed in any one of the preceding claims, characterized in that the strip has an equivalent linear stiffness K'_{eq} at least equal to 25 MPa and an equivalent loss factor $\tan\delta_{eq}$ at least equal to 0.25 at the use temperature.

12. The damping material as claimed in any one of claims 1 to 10, characterized in that it is in the form of a layer possessing permanent bondability by chemical modification of the material carried out by a reaction between the terminal isocyanates of the prepolymers and the monols, its two opposed faces intended for bonding being coated with protective films.

13. The damping material as claimed in any one of the preceding claims, characterized in that it is intended to be joined to at least one element using an extrusion, encapsulation, transfer molding or injection molding technique.

14. The damping material as claimed in any one of the preceding claims, characterized in that it is intended to be inserted between two elements (1, 2) of the glass-metal, metal-metal, glass-glass, metal-plastic, glass-plastic or plastic-plastic type.

15. The damping material as claimed in claim 14, characterized in that it is used also as material for bonding to at least one of the elements.

16. The damping material as claimed in claim 13, characterized in that it is inserted between a glass substrate and a metal element so as to be used to fasten the substrate to the metal element.

17. The damping material as claimed in claim 14, characterized in that it is used to fasten a window to the body of a motor vehicle.

18. The damping material as claimed in claim 13, characterized in that an additional fastening material bonds the damping material to the element to which it is intended to be joined.

19. The damping material as claimed in claim 18, characterized in that the additional fastening material is a damping material as claimed in any one of claims 1 to 12.